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(54) **A COOKING DEVICE WITH A DOOR SPACER**

(57) The invention is a cooking device (1) comprising a body (10), a cooking chamber (11) defined inside the body (10) and providing drying at a temperature value between 40°C and 100°C, an openable door (13) providing access to the cooking chamber (11) and fixed to the body (10), and a hinge (14) facilitating swing of the door (13) towards a front opening (12) of the cooking chamber (11) by means of a pre-tension in closing direction. The cooking device (1) comprises a removable spacer (2) which keeps the door (13) slightly opened at a predetermined humidity discharge angle (α) while the door (13) swings towards the body (10) in the closing direction.

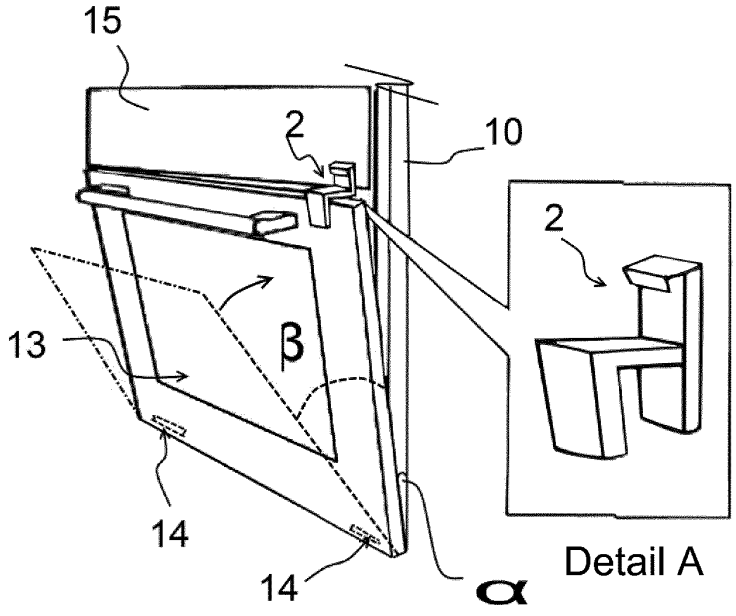

Figure 1

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Description

[0001] The present invention relates to a cooking device having a cooking or drying chamber wherein a drying process providing dehydration of foodstuff is realized.

[0002] The present invention particularly relates to cooking devices having embodiments which provide air input/output and which increase drying efficiency.

[0003] In the present art, there are embodiments in the form of a cooking device or an oven in solo or built-in types. Cooking devices have a cooking chamber wherein foodstuff is cooked. The cooking steam and gas, which occur during cooking, are discharged through a funnel outlet. Cooking devices have a drying function and in general, funnel outlet is used for discharging gas.

[0004] A cooking device may have a drying oven or it may have a cooking chamber which can realize both cooking and drying functions. In the present art, there are improvements for increasing drying efficiency and drying performance.

[0005] One of these can be observed in the utility model application with publication number CN202750692. In the abstract section of the invention, a drying oven is disclosed which is used for food processing. An electric heater and a drying frame are arranged inside the oven. An air feeder provides feeding air into the electric heater. The products placed on the drying frame can be dried through the hot air. Since the drying oven can continuously change the cold air into the hot air, the heat in the oven can be evenly distributed, and therefore the drying effect is good and the drying speed is high.

[0006] The object of the present invention is to increase drying performance by discharging drying air having intensive humidity.

[0007] In order to realize said object, the present invention is a cooking device comprising a body, a cooking chamber defined inside the body and providing drying at a temperature value between 40°C and 100°C, an openable door providing access to the cooking chamber and fixed to the body, and a hinge facilitating swing of the door towards a front opening of the cooking chamber by means of a pre-tension in closing direction. The cooking device comprises a removable spacer which keeps the door slightly opened at a predetermined humidity discharge angle (α) while the door swings towards the body in the closing direction. Thus, thanks to the spacer, the door is left slightly opened, and thereby fresh air enters into the cooking chamber during the drying process and at the same time, hot and humid air is discharged from the cooking chamber. When the door arrives at closed position by means of the hinge, the spacer prevents complete closing of the door, and the door is kept slightly opened at a predetermined angle and thanks to this, the speed and the efficiency of the drying process are increased.

[0008] In a preferred embodiment of the present invention, the humidity discharge angle (α), which provides the door to be left slightly opened, is smaller than a stop angle (β) in the hinge configuration in a closing direction of the door.

[0009] In another preferred embodiment of the present invention, the spacer is fixable to the door. Thus, the spacer can be easily fixed to and removed from the door of the cooking device.

[0010] In another preferred embodiment of the present invention, the spacer comprises a heat-resistant material in the temperature range of 40-100°C. Thus, the spacer shows resistance to heat at temperatures between 40 and 100°C.

[0011] In another preferred embodiment of the present invention, the spacer is made of a material including Polybutylene Terephthalate called as PBT. Thus, the spacer is made of a robust and heat-resistant material which does not lead to emission of hazardous chemicals.

[0012] In another preferred embodiment of the present invention, the spacer comprises a resting section which rests onto a body front section. Thus, while the spacer is fixed to the door, it rests onto a body front section of the cooking device and to a front wall of a control panel and it prevents closing of the door.

[0013] In another preferred embodiment of the present invention, the resting section has a flat form so as to be aligned with the body front section. Thus, the spacer is secured in its mounted position in a fixed and balanced manner.

[0014] In another preferred embodiment of the present invention, the spacer is in the form of a latch comprising an extension section extending from the resting section providing holding on to a wall or a door of the cooking device, and a support section corresponding to the extension section. Thus, the spacer is secured in its mounted position in a fixed and balanced manner. At the same time, the spacer holds on to the door or to the wall in a tight manner.

[0015] In another preferred embodiment of the present invention, the spacer comprises a bridge section which connects the extension section and the support section to each other. Thus, the extension section and the support section are connected to each other.

[0016] In another preferred embodiment of the present invention, the spacer comprises a fixation opening formed between the extension section and the support section and which provides fixation to a wall or door of the cooking device. Thus, a section of the door wall or a section of the cooking device wall engages to the fixation opening and thereby the spacer is fixed.

[0017] In another preferred embodiment of the present invention, the spacer comprises a gripping part which facilitates removal or fixation thereof. Thus, the gripping part provides the spacer to be removed or fixed through this section.

[0018] In another preferred embodiment of the present invention, the predetermined β angle is selected to be 45° or an angle smaller than 45°. Thus, thanks to the hinge, the door is kept slightly opened at an angle equal to 45° or smaller than 45°. Since the door will be slightly

opened at this angle, air input/output is provided during the drying process.

[0019] In another preferred embodiment of the present invention, the angle (β) at which the hinge stops the door is equal to 40°.

[0020] In another preferred embodiment of the present invention, α angle is between minimum 2° and maximum 40°. Thus, the door opening angle changes depending on the resilience of the material forming the spacer. However, in order for the door opening angle to be between 2 and 40°, it is produced from a material whose wall thickness and resilience are pre-adjusted.

[0021] In another preferred embodiment of the present invention, α angle is equal to 10°.

Figure 1 is a perspective view where the subject matter spacer is fixed onto a cooking device door.

Detail A is the zoomed view of the subject matter spacer.

Figure 2a is a frontal perspective view of the subject matter spacer.

Figure 2b is a lateral perspective view of the subject matter spacer.

Figure 2c is a lateral two-dimensional view of the subject matter spacer.

Figure 3 is the perspective view where the subject matter spacer is fixed onto a cooking device.

[0022] The present invention relates to a cooking device (1) having a spacer (2) which provides a door (13), closing a front opening (12) of a cooking or drying chamber (11), to be kept slightly opened in order to increase the drying efficiency (Figure 1, Detail A, Figure 3).

[0023] The cooking or drying chamber (11) of the cooking device (1) will be called "cooking chamber" hereafter. The cooking device (1) having the cooking chamber (11) whereto the present invention is applied may be in the form of an oven or an oven with cooktop.

[0024] The cooking device (1) comprises a body (10), at least one cooking chamber (11) provided inside the body (10), a control panel (16) providing setting of the functions of the cooking device (1), a door (13) closing the front opening (12) of the cooking chamber (11), and at least one hinge (14) providing assembly of the door (13) in an openable manner. The hinge(s) (14) keep(s) the door (13) completely open or provide(s) the door (13) to be completely closed or the hinge(s) may keep the door (13) slightly opened at a β angle. β angle is an angle equal to or smaller than 45°. β angle can be adjusted by means of the hinge (14) and it can be kept fixed. In an application of the present invention, the β angle, which is the angle at which the hinge (14) stops the door (13), is equal to 40°.

[0025] Figure 2a is the frontal perspective view of the subject matter spacer (2), Figure 2b is the lateral perspective view of the subject matter spacer (2), Figure 2c is the lateral two-dimensional view of the subject matter spacer (2). The spacer (2) is one-piece and it is fixable to and removable from the door (13) of the cooking device (1), and it is made of a material comprising Polybutylene Terephthalate called as PBT. It is resistant to heat and it does not lead to emission of environmentally harmful chemical substances. It is not very resilient. In general, it is in the shape of letter "h". The long side of said letter "h" is formed by a resting section (24) and by an extension section (21). The short side of said letter "h" is formed by a support section (22). The extension section (21) and the support section (22) are mutually connected to each other. A bridge section (23) forms the connection section. There is approximately an angle of 90° between the bridge section (23) and the extension section (21). The angle between the extension section (21) and the support section (22) is smaller than 90°. Thus, the extension section (21) and the support section (22) can grip any item in between or they can hold on to any item in between. One end of the resting section (24) is open, and preferably a gripping part (25) is formed on said open end. The gripping part (25) provides the spacer (2) to be removed or to be fixed through this section. In order for the spacer (2) to be fixed onto the cooking device (1), in particular to the door (13) of the cooking device (1), a fixation opening (26) is formed between the extension section (21) and the support section (22). When the spacer (2) is fixed to the door (13), a section of a wall of the door (13) is placed to the fixation opening (26).

[0026] In more details, the operation of the present invention is as follows. The use of the subject matter spacer (2) can be seen in Figure 1 and 3. The foodstuff to be dried is placed into the cooking chamber (11) of the cooking device (1), and said foodstuff is subject to a drying process. In the drying process of the cooking device (1), the temperature of the cooking chamber (11) rises up to maximum 100°C. In order to dry the foodstuff, this temperature value and the approximate lower and upper limits of this value are sufficient. The drying process is generally realized at 70°C. Thus, the drying process is continued without cooking. During the drying process, in general, the clean air inside the cooking chamber (11) is utilized. The heated air is generally output through a funnel section. However, such a system is insufficient in terms of the efficiency and speed of the drying process. The subject matter spacer (2) is fixed to the door (13) of the cooking chamber (11). The spacer (2) is fixed to an edge of the door (13), particularly to an upper edge of the door (13). When the spacer (2) is fixed, the extension section (21) and particularly the resting section (24) are rested onto the body front section (15) of the cooking device (1). It is fixed by means of the support of the resting section (24). The two arms of the spacer (2), namely the extension section (21) and the support section (22) provide tight holding on to the door (13) edge like a latch. The gripping part (25) provides the spacer (2) to be easily fixed and removed. The spacer (2) fixed to the door (13) provides the door (13) to be released from a β angle, and

provides the door (13) to resist against a closing action and moreover it provides the door (13) to be open within an angle range of between minimum 2° and maximum 40°. This angle, in other words, α angle, provided by the spacer (2), changes depending on the resilience of the material of the spacer (2), the wall thickness of the extension section (21) and the closing force of the hinge (14). In an application of the present invention, α angle is equal to 10°.

[0027] By means of the spacer (2), fresh air enters into the cooking chamber (11) through the front opening (12) of the door (13). At the same time, during foodstuff dehydration process, the hot and humid air existing inside the cooking chamber (11) exits through said front opening (12).

[0028] Thus, there remains no need for formation of an additional discharge channel for air input and air output. At the same time, fresh air is provided into the cooking chamber (11). The subject matter spacer (2) is removable and one-piece and no assembly element - connection element is needed during fixation of the spacer (2). By means of this, the spacer (2) has no negative effect on the cooking device (1). For instance, there is no need to punch any connection hole, etc. Thus, deformation or enamel paint cracks is/are prevented.

[0029] In an alternative embodiment of the present invention, the form of the spacer (2) can be changed. The spacer (2) can be formed without the support section (22).

[0030] In an alternative embodiment of the present invention, the spacer (2) can be fixed on the door (13) in different forms. The fixation of the spacer (2) can be provided by means of a magnet.

REFERENCE NUMBERS

[0031]

1. Cooking device
2. Spacer

10. Body
11. Cooking chamber
12. Front opening
13. Door
14. Hinge
15. Body front section
16. Control panel

21. Extension section
22. Support section
23. Bridge section
24. Resting section
25. Gripping part
26. Fixation opening

α: Humidity discharge angle
β: Angle at which the hinge stops the door

Claims

1. A cooking device (1) comprising a body (10), a cooking chamber (11) defined inside the body and providing drying at a temperature value between 40°C and 100°C, an openable door (13) providing access to the cooking chamber (11) and fixed to the body (10), and a hinge (14) facilitating swing of the door (13) towards a front opening (12) of the cooking chamber (11) by means of a pre-tension in closing direction, **characterized in that** the cooking device (1) comprises a removable spacer (2) which keeps the door (13) slightly opened at a predetermined humidity discharge angle (α) while the door (13) swings towards the body (10) in the closing direction.

2. The cooking device (1) according to claim 1; wherein the humidity discharge angle (α), which provides the door (13) to be left slightly opened, is smaller than a stop angle (β) in the hinge (14) configuration in a closing direction of the door (13).

3. The cooking device (1) according to claim 1; wherein the spacer (2) is fixable to the door (13).

4. The cooking device (1) according to anyone of the preceding claims; wherein the spacer (2) comprises a heat-resistant material in the temperature range of 40-100°C.

5. The cooking device (1) according to anyone of the preceding claims; wherein the spacer (2) is made of a material including Polybutylene Terephthalate called as PBT.

6. The cooking device (1) according to anyone of the preceding claims; wherein the spacer (2) comprises a resting section (24) which rests onto a body front section (15).

7. The cooking device (1) according to Claim 6; wherein the resting section (24) has a flat form so as to be aligned with the body front section (15).

8. The cooking device (1) according to anyone of the preceding claims; wherein the spacer (2) is in the form of a latch comprising an extension section (21) extending from the resting section (24) providing holding on to a wall or a door (13) of the cooking device (1), and an support section (22) corresponding to the extension section (21).

9. The cooking device (1) according to Claim 8; wherein the spacer (2) comprises a bridge section (23) which connects the extension section (21) and the support section (22) to each other.

10. The cooking device (1) according to claim 8 or 9;

wherein the spacer (2) comprises a fixation opening (26) formed between the extension section (21) and the support section (22) and which provides fixation to a wall or door (13) of the cooking device (1).

11. The cooking device (1) according to anyone of the preceding claims; wherein the spacer (2) comprises a gripping part (25) which facilitates removal or fixation thereof.

12. The cooking device (1) according to Claim 1; wherein the predetermined β angle is equal to or smaller than 45°.

13. The cooking device (1) according to Claim 12; wherein the angle (β) at which the hinge (14) stops the door (13) is equal to 40°.

14. The cooking device (1) according to Claim 1; wherein α angle is between minimum 2° and maximum 40°.

15. The cooking device (1) according to Claim 14; wherein α angle is equal to 10°.

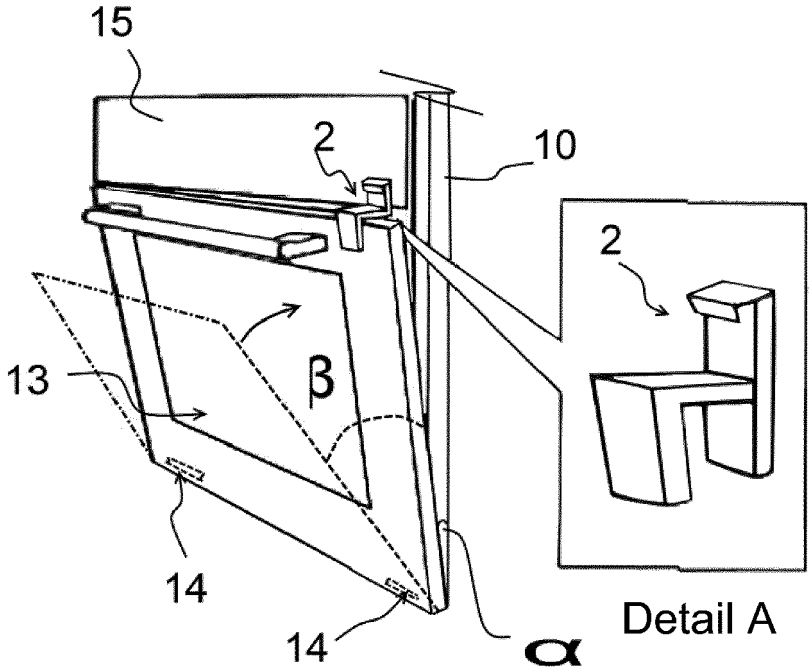

Figure 1

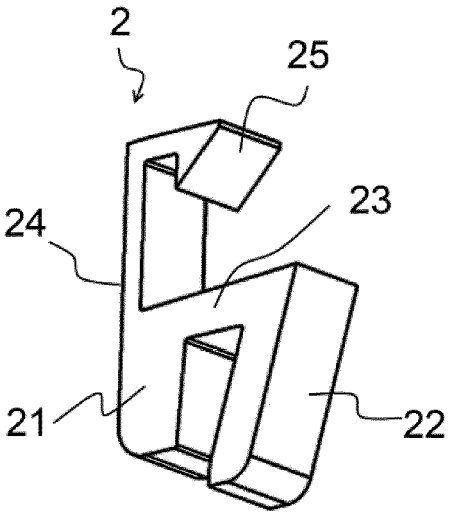

Figure 2a

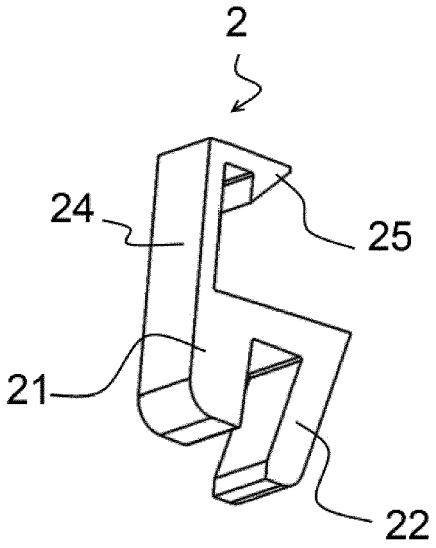

Figure 2b

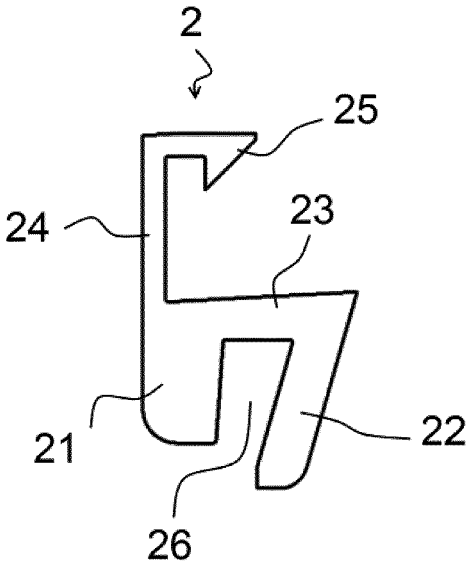

Figure 2c

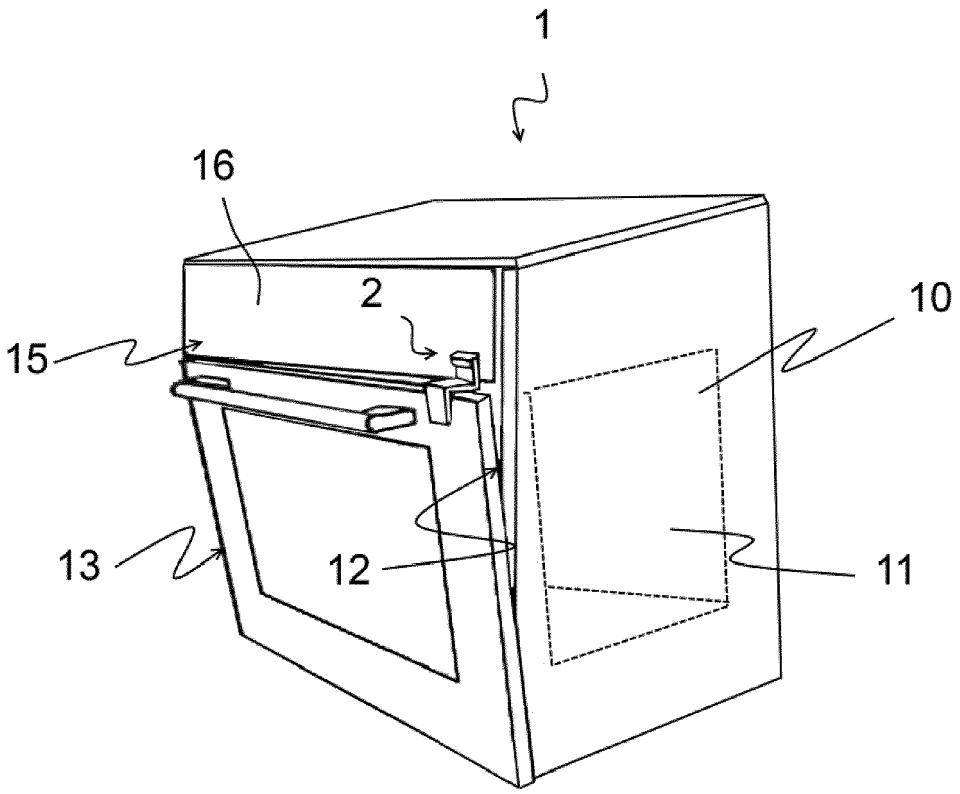

Figure 3

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EUROPEAN SEARCH REPORT

Application Number
EP 15 18 1999

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			TECHNICAL FIELDS SEARCHED (IPC) F24C

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	18 January 2016	Verdoodt, Luk

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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REFERENCES CITED IN THE DESCRIPTION

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